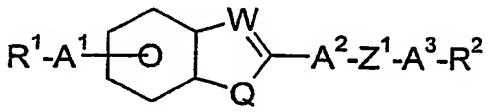
Claims

1. Polymerizable, luminescent compounds of formula I

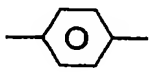
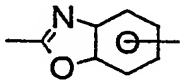
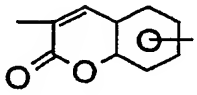
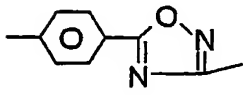


wherein

R^1, R^2		are independently of each other H, halogen, NO_2, CN, NCS, straight chain, branched or cyclic alkyl with 1 to 25 C-atoms wherein one or more CH_2 groups may also be replaced by -CO-, -O-, -S-, -NR^o-, -CH=CH-, -C≡C- in such a manner that O- and/or S-atoms are not linked directly to one another, and wherein one or more H-atoms may also be replaced by F or Cl, or denotes P-(Sp-X)$_n$-,
Sp		is a spacer group with 1 to 20 C-atoms,
P		is a polymerizable group,
X		is -O-, -S-, -CO-, -COO-, -OCO-, -CO-NR^o-, -NR^o-CO-, -NR^o- or a single bond,
n		is 0 or 1,
R^o		is H or alkyl with 1 to 5 C-atoms,
A^1		is 1,4-phenylene, wherein 1, 2, 3 or 4 H-atoms may be replaced by F or Cl, or a single bond,
Q		is -O-, -S-, -NR^o- or -N<(X-Sp)$_n$-P ,

W is -CH=, -N= or -CO-CH=,

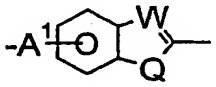
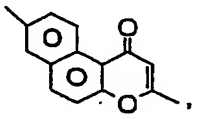
A^2 is 1,4-phenylene or 2,5-thiophene, wherein in each case one or more H-atoms may be replaced by F or Cl, or denotes a single bond,

A^3 is  ,  ,  or  , wherein one or more H-atoms can be replaced by F or Cl,

Z^1 is -CH=CH-, -CF=CH-, -CH=CF-, -CF=CF- or a single bond

with the proviso that

a) the compounds of formula I contain one, two or more groups $-(X\text{-}Sp)_n\text{-}P$,

b) if W denotes -CO-CH=, then  denotes  ,

[der Fall "not fused" ist wohl kein luminesz. Farbstoff]

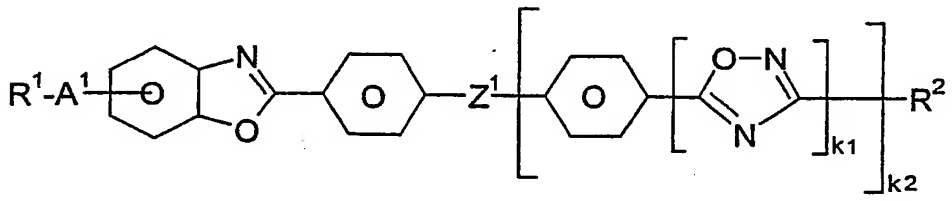
c) if W is -N=, Q is -O-, A^2 and Z^1 are a single bond, A^3 is 1,4-phenylene and R^2 is $P\text{-}(Sp\text{-}X)_n$- then R^1 is an achiral group, [siehe Kim et al., Bull Korean Chem. Soc. 20, 1999, 473]

d) if W is -N=, Q is -O-, A^2 and A^3 denote 1,4-phenylene and Z^1 is a single bond then A^1 is a single bond. [siehe WO 00/97104 "Pigment flakes" S. 35]

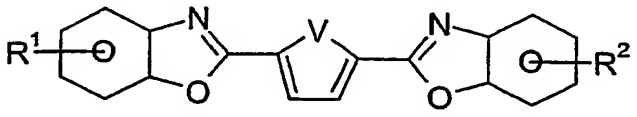
2. Compounds according to claim 1 wherein W denotes -N=.

3. Compounds according to claim 1 wherein W denotes -CH= and Q is -O-.

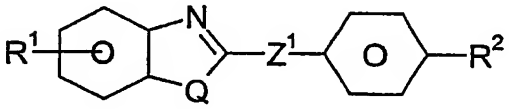
4. Compounds according to claim 2 selected of the following subformulae



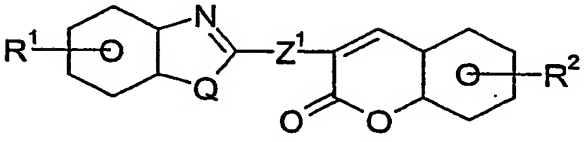
Ia



Ib



Ic



Id

wherein

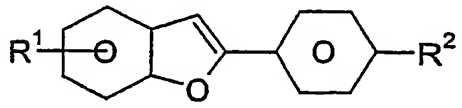
k1, k2 are independently of each other 0 or 1,

V is -S- or -CH=CH- and

R^1, R^2, Q, Z^1 and A^1 are defined as in claim 1,

with the proviso that if Z^1 denotes a single bond, k1 = 0 and k2 = 1, then A^1 is a single bond.

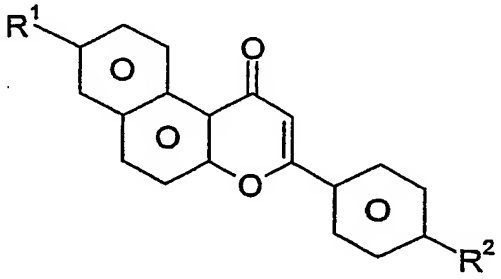
5. Compounds according to claim 3 of the subformula Ie



Ie

wherein R^1 and R^2 are defined as in claim 1.

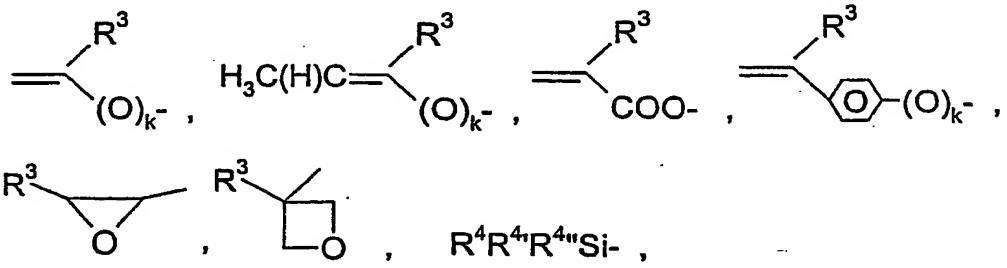
6. Compounds according to claim 1 of the subformula If



If

wherein R^1 and R^2 are defined as in claim 1.

7. Compounds according to one of the preceding claims 1 to 6 wherein P is selected from



wherein

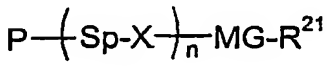
R^3 is H, Cl or alkyl with 1 to 5 C-atoms,

R^4,$R^{4'}$,$R^{4''}$ are independently of each other -Cl, -O-alkyl and/or -O-CO-alkyl with alkyl having 1 to 5 C-atoms and

k is 0 or 1.

8. Polymerizable mixture comprising at least one compound according to one of the claims 1 to 7.

9. Polymerizable mixture according to claim 8 further comprising at least one polymerizable mesogenic compound of formula II



II

wherein

P	is a polymerizable group,
Sp	is a spacer group having 1 to 20 C-atoms,
X	is a group selected from -O-, -S-, -CO-, -COO-, -OCO-, -O-COO-, $-SO_2-O-$, $-O-SO_2-$ or a single bond,
n	is 0 or 1,
R^{21}	is H or an alkyl radical with up to 25 C atoms which may be unsubstituted, mono- or polysubstituted by halogen or CN, it being also possible for one or more non-adjacent CH_2 groups to be replaced, in each case independently from one another, by -O-, -S-, -NH-, $-N(CH_3)-$, -CO-, -COO-, -OCO-, -OCO-O-, -S-CO-, -CO-S- or -C≡C- in such a manner that oxygen atoms are not linked directly to one another, or alternatively R^{21} is halogen, cyano or has independently one of the meanings given for $P-(Sp-X)_n-$,
MG	is a mesogenic or mesogenity supporting group.

10. Polymerizable mixture according to claim 9 wherein MG is a mesogenic or mesogenity supporting group of formula III

$$-\left(A^{31}-Z^{31}\right)_m A^{32}-Z^{32}A^{33}- \qquad \text{III}$$

wherein

A^{31}, A^{32}, A^{33} being independently from one another 1,4-phenylene in which, in addition, one or more CH groups may be replaced by N, 1,4-cyclohexylene in which, in addition, one or two non-adjacent CH_2 groups may be replaced by O and/or S, 1,4-cyclohexenylene or naphthalene-2,6-diyl, it being possible for all these groups to be unsubstituted, mono- or polysubstituted with halogen, cyano or nitro groups or alkyl, alkoxy or alkanoyl groups having 1 to 7 C atoms wherein one or more H atoms may be substituted by F or Cl,

Z^{31}, Z^{32} being independently from one another -O-, -CO-, -COO-, -OCO-, $-SO_2-O-$, $-O-SO_2-$, $-CH_2CH_2-$, $-OCH_2-$, $-CH_2O-$, -CH=CH-, -C≡C-, -CH=CH-COO-, -OCO-CH=CH- or a single bond and

m is 0, 1 oder 2.

11. Polymerizable mixture according to claim 8, 9 or 10 further comprising at least one polymerizable and photoorientable compound.

12. Polymerizable mixture according to claim 11 characterized in that the polymerizable and photoorientable compound is denoted by the formula IV

$$P-(Sp-X)_n-A^{41}-A^{42}-Z^4-A^{43}-A^{44}-R^{41} \qquad \text{IV}$$

wherein

P	is a polymerizable group,
Sp	is a spacer group having 1 to 20 C-atoms,
X	is a group selected from -O-, -S-, -CO-, -COO-, -OCO-, -O-COO-, $-SO_2-O-$, $-O-SO_2-$ or a single bond,
n	is 0 or 1,
A^{41}, A^{42}, A^{43}, A^{44}	are independently of each other 1,4-phenylene, wherein 1, 2, 3 or 4 H-atoms may be replaced by F or Cl,
A^{41}, A^{44}	may in addition to the above given meaning denote independently of each other a single bond,
Z^4	is -N=N-, -CH=CH- or $-(O)_{s1}(CH_2)_{s2}O-CO-CH=CH-$ with s1 being 0 or 1 and s2 being 0 to 6,
R^{41}	is H, halogen, NO_2, CN, SCN, straight chain, branched or cyclic alkyl with 1 to 25 C-atoms wherein one or more CH_2 groups can also be replaced by -O-, -S-, $-NR^o-$, -CH=CH-, -C≡C- in such a manner that O- and/or S-atoms are not linked directly to one another, and wherein one or more H-atoms can also be replaced by F or Cl, or denotes $P-(Sp-X)_n-$.

13. Polymer material obtainable by polymerizing a polymerizable mixture according to one of the claims 8 to 12.

14. Polymer material according to claim 13 obtainable by a process comprising the following steps

a) forming a thin layer of the polymerizable material,

b) aligning the molecules of the compounds of the mixture in the thin layer into a uniform orientation or a patterned orientation such that in each pattern the orientation is uniform,

c) polymerizing said polymerizable material.

15. Use of a compound according to one of the claims 1 to 7 or of a polymerizable mixture according to one of the claims 8 to 12 for the manufacture of photoluminescent and/or electroluminescent polymer materials.

16. Use of a polymer material according to claim 13 or 14 as a photo- and/or electroluminescent material in a light emitting device, an optical or electrooptical display element.

17. Light emitting device comprising a polymer material according to claim 13 or 14 as a photo- and/or electroluminescent material.

18. Optical or electrooptical display element comprising a polymer material according to claim 13 or 14 as a photo- and/or electro-luminescent material.